



Use Attainability Analysis

for

WBID 2873 Musco Creek

Submitted by
MEC/ERC

To
Missouri Department of Natural Resources
Water Protection Program

On
December 15, 2008

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet A – Water Body Identification

I. Water Body Information (for water body being surveyed)

Water Body Name (from USGS 7.5' quad):	MUSCO Creek
Missouri Water Body Identification (WBID) Number:	2873
8-digit HUC:	0820202
County(ies), Listed Upstream to Downstream:	Madison
Upstream Legal Description (from Table H):	22, 34N, 6E
Downstream Legal Description (from Table H):	26, 34N, 6E
Number of sites evaluated:	3
List all site numbers, <u>consecutively upstream to downstream</u> :	Site 1 , Site 2 , Site 3
Include a Site Location Map(s). The map must include all requirements detailed in the <i>Missouri Recreational Use Attainability Analyses: Water Body Survey and Assessment Protocol</i> (Section IV.D.8.a).	

II. Facility Information (list all permitted discharges to this water body segment)

Facility Name(s) and Permit Number(s):	
Oak Ridge Mobile Home Park	MO 0123340
BSA, Astronaut Hall WWTF	MO 0131890
Plummer Family Theatre	MO 0125750
Cedar Rock MHP	MO 0122009

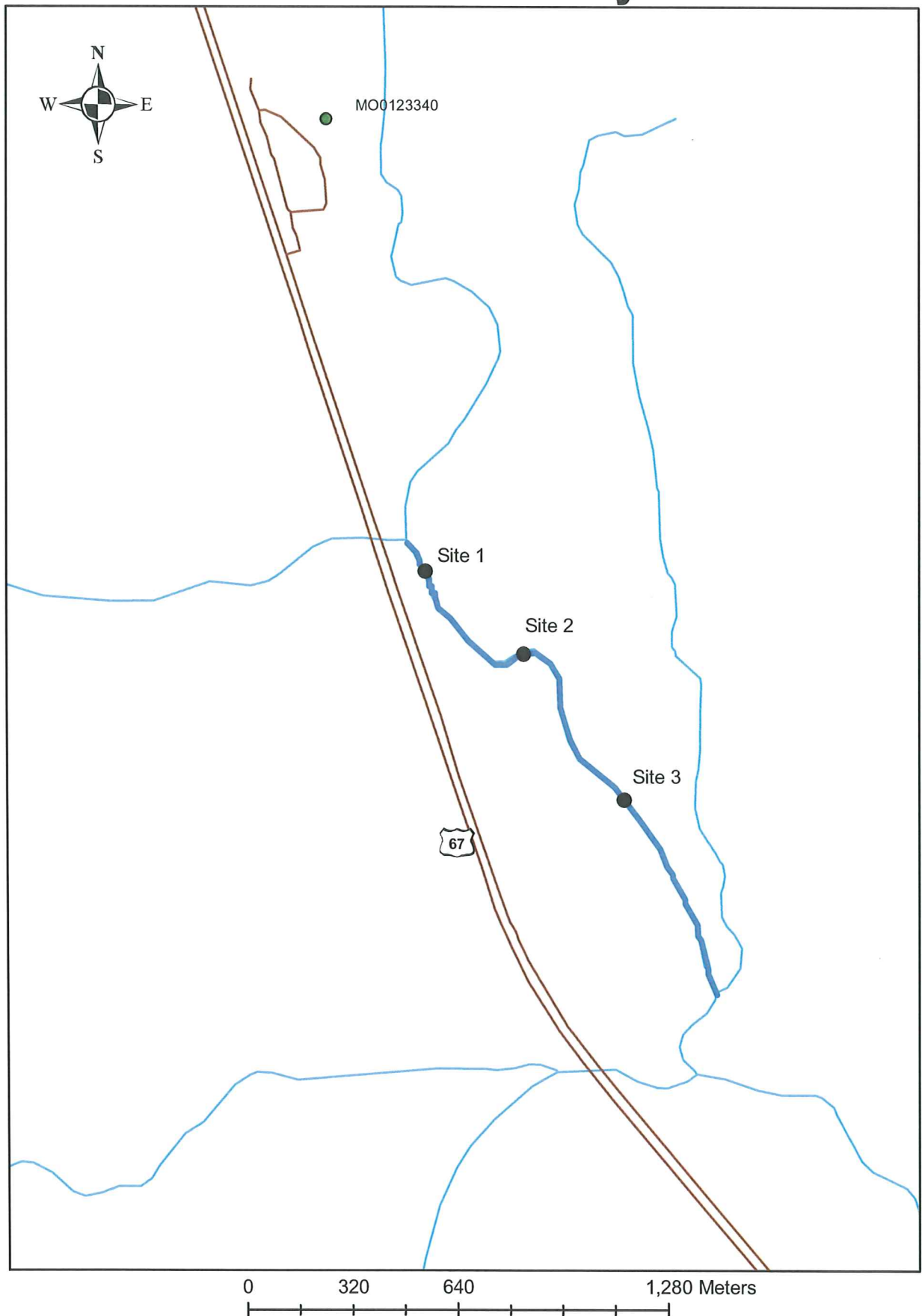
III. UAA Surveyor (please **PRINT** legibly)

Name of Surveyor: Cody Luebbering	Telephone Number: (573) 443-4100
Organization/Employer: MEL Water Resources Inc.	

Please verify that you have completed all sections of all data sheets, checked all applicable boxes, provided a map (that includes all requirements listed in the *Missouri Recreational Use Attainability Analyses: Water Body Survey and Assessment Protocol*) and that this form is complete.

Signed: Cody Luebbering Date: 12-8-08

WBID #2873 - Musco Creek Madison County



WBID # 2873Site # 01**Field Data Sheets for Recreational Use Stream Surveys****Data Sheet B – Site Characterization** (Page 1 of 3)

(must be completed for each site)

Date & Time: <u>12-8-08</u> <u>11:22</u>	Location Description (e.g., road crossing): <u>100m Downstream from SBARF crossing Scouting Ridge Rd.</u>
Stream Name: <u>Musco Creek</u>	
Current Weather Conditions: <u>45°F, Cloudy, Windy</u>	Facility Name(s): <u>Data Sheet A</u>
Weather Conditions for Past 10 days: <u>0.5 inch rainfall</u>	Permit Number(s): <u>Data Sheet A</u>
Official Drought Conditions at time of this survey (search DNR home page for "drought"): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)					
Site 01	Easting (UTM X): <u>0733069</u>	Northing (UTM Y): <u>4168674</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>9.2</u>	Meters	
Site 11	Easting (UTM X): <u>0733148</u>	Northing (UTM Y): <u>4168516</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>8.1</u>	Meters	

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>2873-01-001</u>	<u>UPS</u>	<u>2873-01-002</u>	<u>DNS</u>		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at the time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.) <u>N/A</u>				

Stream Name & WBID # Musco Creek 2873Date of Survey 12-8-08Site # 01**Field Data Sheets for Recreational Use Stream Surveys****Data Sheet B – Site Characterization** (Page 2 of 3)**Surrounding Conditions*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input checked="" type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input checked="" type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input checked="" type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:

Comments: Boy Scouts Park with Missouri Department of Conservation signs posted.

Evidence of Human Use*: (Attach photos and reference in "Photos" section.)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input checked="" type="checkbox"/> None of the above	Comments / Other: <u>N/A</u>			

Substrate*: (These values should add up to 100%.)

<u>60</u> % Cobble	% Gravel	<u>10</u> % Sand	% Silt	% Mud/Clay	<u>30</u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

abundant algal growth w/ minimal aquatic grasses
lots of young woody trees w/in stream bed

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input checked="" type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input checked="" type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Stream Name & WBID # Musco Creek 2873Date of Survey 12-8-08Site # 01**Field Data Sheets for Recreational Use Stream Surveys****Data Sheet B – Site Characterization** (Page 3 of 3)**Additional Stream Morphology:** (Record isolated pools or other features identified during the survey that may support recreational uses.)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)
		N/A			

Comments: (Please record any additional comments here.)

N/A

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Printed Names of Personnel Collecting Data: Travis Howell Cody LuebberingSurveyor's Signature: Cody Luebbering Date of Survey: 12-8-08Organization: ERC, MEC Water Resources Inc. Position: Field Technician

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Musco Creek</u>		Waterbody ID: <u>2873</u>		Site #: <u>01</u>	
Estimated Channel Incision: <u>0.2</u> (m) (height between low bank width and water)					
GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)					
01 UTM X: <u>0733069</u>		UTM Y: <u>4168674</u>		+/- <u>9.2</u> (meters)	
11 UTM X: <u>0733148</u>		UTM Y: <u>4168516</u>		+/- <u>8.1</u> (meters)	
Average Stream Width: <u>7.0</u> (meters)			Length of Survey Segment: <u>150</u> (meters)		
(To determine Length of Reach)			(20x average stream width)		
Field Staff: <u>TH, CL</u>					

Dissolved Oxygen	
Date: <u>12-8-08</u>	Time: <u>11:22</u>
Dissolved Oxygen: <u>11.97</u> (mg/L)	
Dissolved Oxygen: <u>91.3</u> (% sat)	
Specific Cond: <u>275.6</u> (µS/cm)	
Water Temperature: <u>3.9</u> (°C)	

Station		Transect Cross-Section																					
		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Left Bank		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1		0.35	0.08	0.67	0.40	1.13	0.21	0.92	0.05	0.63	0.11	0.31	0.08	0.09	0.08	0.24	0.14	1.07	0.30	0.72	0.13	0.84	0.30
2		0.70	0.10	1.34	0.39	2.26	0.30	1.84	0.10	1.26	0.13	0.62	0.13	0.18	0.06	0.48	0.21	2.14	0.29	1.44	0.08	1.68	0.29
3		1.05	0.12	2.01	0.46	3.39	0.38	2.76	0.10	1.89	0.09	0.93	0.16	0.27	0.05	0.72	0.20	3.21	0.33	2.16	0.14	2.52	0.26
4		1.40	0.12	2.68	0.38	4.52	0.50	3.68	0.19	2.52	0.09	1.24	0.06	0.36	0.07	0.96	0.18	4.28	0.41	2.88	0.09	3.36	0.19
5		1.75	0.18	3.35	0.45	5.65	0.46	4.60	0.31	3.15	0.08	1.55	0.10	0.45	0.08	1.20	0.32	5.35	0.39	3.60	0.16	4.20	0.10
6		2.10	0.08	4.02	0.26	6.78	0.48	5.52	0.40	3.78	0.05	1.86	0.11	0.54	0.08	1.44	0.32	6.42	0.38	4.32	0.20	5.04	0.06
7		2.45	0.05	4.69	0.20	7.91	0.51	6.44	0.46	4.41	0.05	2.17	0.08	0.63	0.05	1.68	0.25	7.49	0.39	5.04	0.22	5.88	0.03
8		2.80	0.10	5.36	0.00	9.04	0.47	7.36	0.52	5.04	0.07	2.48	0.03	0.72	0.03	1.92	0.18	8.56	0.40	5.76	0.19	6.72	0.08
9		3.15	0.08	6.03	0.05	10.17	0.40	8.28	0.30	5.67	0.03	2.79	0.02	0.81	0.02	2.16	0.12	9.63	0.37	6.48	0.16	7.56	0.13
Right Bank		3.50	0.00	6.70	0.00	11.30	0.00	9.20	0.00	6.30	0.00	3.10	0.00	0.90	0.00	2.40	0.00	10.70	0.00	7.20	0.00	8.40	0.00
Feature Type (riffle, run, or pool)		Run		Run		Pool		Pool		Run		Riffle		Riffle		Run		Pool		Run		Run	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)
 Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)
 All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: Cody Lulking Date: 12-8-08

WBID # 2873
Site # 2

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 1 of 3) (must be completed for each site)

Date & Time: <u>12-8-08</u> <u>11:49</u>	Location Description (e.g., road crossing): <u>100m Downstream from site 1</u>
Stream Name: <u>Musco Creek</u>	
Current Weather Conditions: <u>Cloudy, Windy, 50°F</u>	Facility Name(s): <u>Data Sheet A</u>
Weather Conditions for Past 10 days: <u>.15 inch rainfall</u>	Permit Number(s): <u>Data Sheet A</u>
Official Drought Conditions at time of this survey (search DNR home page for "drought"): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): <u>0733252</u>	Northing (UTM Y): <u>4168399</u>	Horizontal Accuracy: <u>7.5</u> Meters (EPE / FOM / PDOP)
Site 11	Easting (UTM X): <u>0733394</u>	Northing (UTM Y): <u>4168356</u>	Horizontal Accuracy: <u>4.8</u> Meters (EPE / FOM / PDOP)

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>2873-02-003</u>	<u>ups</u>				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>2873-02-004</u>	<u>Ans</u>				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at the time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.) <u>N/A</u>				

Stream Name & WBID # Musco Creek 2873Date of Survey 12-8-08Site # 02**Field Data Sheets for Recreational Use Stream Surveys****Data Sheet B – Site Characterization** (Page 2 of 3)**Surrounding Conditions*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input checked="" type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input checked="" type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> Other: <u>Wooded</u>

Comments: Boy Scout area w/ Missouri Department of Conservation signs posted

Evidence of Human Use*: (Attach photos and reference in "Photos" section.)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input checked="" type="checkbox"/> None of the above	Comments / Other: <u>N/A</u>			

Substrate*: (These values should add up to 100%.)

<u>65</u> % Cobble	% Gravel	<u>5</u> % Sand	% Silt	% Mud/Clay	<u>30</u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

<u>Abundant algal growth w/ aquatic grasses present</u>

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input checked="" type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Stream Name & WBID # Musco Creek 2873Date of Survey 12-8-08Site # 02**Field Data Sheets for Recreational Use Stream Surveys****Data Sheet B – Site Characterization** (Page 3 of 3)**Additional Stream Morphology:** (Record isolated pools or other features identified during the survey that may support recreational uses.)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)
		N/A			

Comments: (Please record any additional comments here.)

Large boulders w/in stream

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Printed Names of Personnel Collecting Data: Travis Howell Cody LuebberingSurveyor's Signature: Cody Luebbering Date of Survey: 12-8-08Organization: ERC, MEC Water Resources Inc. Position: Field Technician

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Musco Creek</u>	Waterbody ID: <u>2873</u>	Site #: <u>02</u>
Estimated Channel Incision: <u>0.2</u> (m) (height between low bank width and water)		
GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)		
01 UTM X: <u>0733252</u>	UTM Y: <u>4168399</u>	+/- <u>7.5</u> (meters)
11 UTM X: <u>0733394</u>	UTM Y: <u>4168356</u>	+/- <u>4.8</u> (meters)
Average Stream Width: <u>6.0</u> (meters)		Length of Survey Segment: <u>150</u> (meters)
(To determine Length of Reach)		(20x average stream width)
Field Staff: <u>TH, LL</u>		

Dissolved Oxygen	
Date: <u>12-8-08</u>	Time: <u>11:49</u>
Dissolved Oxygen: <u>12.96</u> (mg/L)	
Dissolved Oxygen: <u>102.3</u> (% sat)	
Specific Cond: <u>280.0</u> (µS/cm)	
Water Temperature: <u>3.9</u> (°C)	

Station		Transect Cross-Section																					
		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Left Bank		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1	0.71	0.15	0.59	0.20	0.73	0.06	0.53	0.05	0.63	0.08	0.32	0.10	0.16	0.04	0.20	0.09	0.16	0.11	0.14	0.02	0.41	0.10
	2	1.42	0.21	1.18	0.13	1.46	0.10	1.06	0.12	1.26	0.15	0.64	0.20	0.32	0.10	0.40	0.13	0.32	0.15	0.38	0.06	0.82	0.03
	3	2.13	0.07	1.77	0.02	2.19	0.12	1.54	0.08	1.89	0.02	0.96	0.28	0.48	0.17	0.60	0.12	0.48	0.21	0.57	0.13	0.123	0.03
	4	2.84	0.12	2.36	0.14	2.92	0.19	2.12	0.07	2.52	0.02	1.28	0.29	0.64	0.14	0.80	0.12	0.64	0.20	0.76	0.07	1.64	0.09
	5	3.55	0.22	2.95	0.18	3.65	0.32	2.65	0.05	3.15	0.06	1.60	0.24	0.80	0.14	1.00	0.11	0.80	0.14	0.95	0.15	2.05	0.12
	6	4.26	0.28	3.54	0.10	4.38	0.30	3.18	0.16	3.78	0.07	1.92	0.22	0.96	0.05	1.20	0.19	0.96	0.06	1.14	0.13	2.46	0.15
	7	4.97	0.24	4.13	0.15	5.11	0.25	3.71	0.10	4.41	0.10	2.24	0.16	1.12	0.05	1.40	0.20	1.12	0.13	1.33	0.05	2.87	0.22
	8	5.68	0.16	4.72	0.09	5.84	0.19	4.24	0.15	5.04	0.05	2.56	0.11	1.28	0.02	1.60	0.10	1.28	0.10	1.52	0.05	3.28	0.16
Right Bank	9	6.39	0.03	5.31	0.14	6.57	0.08	4.77	0.12	5.67	0.04	2.88	0.04	1.44	0.03	1.80	0.07	1.44	0.06	1.71	0.01	3.69	0.11
		7.10	0.00	5.90	0.00	7.30	0.00	5.30	0.00	6.30	0.00	3.20	0.00	1.60	0.00	2.00	0.00	1.60	0.00	1.90	0.00	4.10	0.00
Feature Type		Run		Run		Run		Run		Run		Run		Run		Run		Run		Run		Run	
(riffle, run, or pool)																							

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: Cody Tullberg
 Date: 12-8-08

WBID # 2873Site # 3**Field Data Sheets for Recreational Use Stream Surveys****Data Sheet B – Site Characterization** (Page 1 of 3)

(must be completed for each site)

Date & Time: <u>12-8-08 12:18</u>	Location Description (e.g., road crossing): <u>100 m from Site 2 downstream</u>
Stream Name: <u>Musco Creek</u>	
Current Weather Conditions: <u>Cloudy, Windy, 52°F</u>	Facility Name(s): <u>Data Sheet A</u>
Weather Conditions for Past 10 days: <u>1.5 inch rainfall</u>	Permit Number(s): <u>Data Sheet A</u>
Official Drought Conditions at time of this survey (search DNR home page for "drought"): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): <u>0733520</u>	Northing (UTM Y): <u>4168267</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>10</u> Meters
Site 11	Easting (UTM X): <u>0733577</u>	Northing (UTM Y): <u>4168101</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>8.6</u> Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>2873-03-005</u>	<u>ups</u>				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>2873-03-006</u>	<u>Dns</u>				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at the time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use Data Sheet D- Recreational Use Interview when conducting interviews.) <u>N/A</u>				

Stream Name & WBID # Musco Creek 2873Date of Survey 12-8-08Site # 03**Field Data Sheets for Recreational Use Stream Surveys****Data Sheet B – Site Characterization** (Page 2 of 3)**Surrounding Conditions*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> Other: <u>Wooded</u>
Comments: <u>N/A</u>				

Evidence of Human Use*: (Attach photos and reference in "Photos" section.)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input checked="" type="checkbox"/> None of the above	Comments / Other: <u>N/A</u>			

Substrate*: (These values should add up to 100%.)

<u>40</u> % Cobble	% Gravel	<u>5</u> % Sand	% Silt	% Mud/Clay	<u>55</u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

<u>algal growth abundant, aquatic grass present</u>

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input checked="" type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Stream Name & WBID # Musco Creek 2873Date of Survey 12-8-08Site # 03**Field Data Sheets for Recreational Use Stream Surveys****Data Sheet B – Site Characterization** (Page 3 of 3)**Additional Stream Morphology:** (Record isolated pools or other features identified during the survey that may support recreational uses.)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)
		N/A			

Comments: (Please record any additional comments here.)

Riparian 50m wide w/ oak and cedar trees. Lots of bedrock and some large boulders

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Printed Names of Personnel Collecting Data: Travis Howell Cody LuebberingSurveyor's Signature: Cody Luebbering Date of Survey: 12-8-08Organization: ERL, MEC Water Resources Position: Field Technician

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>Musco Creek</u>	Waterbody ID: <u>2873</u>	Site #: <u>03</u>	Dissolved Oxygen
Estimated Channel Incision: <u>0.10</u> (m) (height between low bank width and water)			Date: <u>12-8-08</u> Time: <u>12:18</u>
GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)			Dissolved Oxygen: <u>12.86</u> (mg/L)
01 UTM X: <u>0733520</u>	UTM Y: <u>4168267</u>	+/- <u>10</u> (meters)	Dissolved Oxygen: <u>97.2</u> (% sat)
11 UTM X: <u>0733577</u>	UTM Y: <u>4168101</u>	+/- <u>8.6</u> (meters)	Specific Cond: <u>270.4</u> (µS/cm)
Average Stream Width: <u>6.0</u> (meters)		Length of Survey Segment: <u>150</u> (meters)	Water Temperature: <u>3.1</u> (°C)
(To determine Length of Reach)		(20x average stream width)	
Field Staff: <u>TH, CL</u>			

Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.37	0.09	0.23	0.04	0.82	0.12	0.72	0.10	0.29	0.04	1.08	0.11	0.51	0.08	0.78	0.05	0.67	0.18	1.13	0.32	0.71	0.14
2	0.74	0.04	0.46	0.00	1.64	0.17	1.44	0.16	0.58	0.06	2.16	0.20	1.02	0.05	1.56	0.03	1.34	0.35	2.26	0.36	1.42	0.10
3	1.11	0.01	0.69	0.00	2.46	0.24	2.16	0.19	0.87	0.06	3.24	0.15	1.53	0.13	2.34	0.11	2.01	0.35	3.39	0.34	2.13	0.02
4	1.48	0.01	0.92	0.12	3.28	0.37	2.88	0.22	1.16	0.02	4.32	0.00	2.04	0.26	3.12	0.14	2.68	0.20	4.52	0.41	2.84	0.26
5	1.85	0.02	1.15	0.09	4.10	0.32	3.60	0.28	1.45	0.01	5.40	0.25	2.55	0.42	3.90	0.17	3.35	0.24	5.65	0.48	3.55	0.03
6	2.22	0.10	1.38	0.07	4.92	0.21	4.32	0.27	1.74	0.05	6.48	0.15	3.06	0.34	4.68	0.26	4.02	0.42	6.78	0.43	4.26	0.11
7	2.59	0.22	1.61	0.05	5.74	0.27	5.04	0.23	2.03	0.05	7.56	0.35	3.57	0.32	5.46	0.21	4.69	0.29	7.91	0.59	4.97	0.20
8	2.96	0.18	1.84	0.08	6.56	0.25	5.76	0.15	2.32	0.04	8.64	0.36	4.08	0.18	6.24	0.17	5.36	0.24	9.04	0.84	5.68	0.19
9	3.33	0.13	2.07	0.03	7.38	0.18	6.48	0.11	2.61	0.04	9.72	0.03	4.59	0.09	7.02	0.15	6.03	0.16	10.17	0.78	6.39	0.15
Right Bank	3.70	0.00	2.30	0.00	8.20	0.00	7.20	0.00	2.90	0.00	10.80	0.00	5.10	0.00	7.80	0.00	6.70	0.00	11.30	0.00	7.10	0.00
Feature Type (riffle, run, or pool)	Run		Run		Pool		Run		Run		Run		Run		Run		Pool		Pool		Run	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: Cody Sullivan

Date: 12-8-08



